

# EMILY ZENG

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## Education

### University of Waterloo

Candidate for  
B.A.Sc.

**Mechatronics  
Engineering**  
2016 – 2021

## Skills Summary

### Languages

- Python
- C++

### Frameworks

- Keras/Tensorflow
- Sk-learn

### Algorithms

- Q-learning
- LSTM

## Experience

### Data Scientist – Praemo

May-Aug 2018

Built a neural network library to predict machine failure in industrial robots

- Used LSTM to develop a general approach to detecting anomalies in time series
- Pre-processed client data and applied neural networks to monitor robot conditions

### Robotics Software Developer – ESI

Sep-Dec 2017

Solved robotic navigation problem using reinforcement learning (Q-learning)

- Used Keras to train a deep artificial neural network with Python
- Converted trained model to C++ to fit it on a microcontroller
- 95% success rate in simulation and 85% success rate on actual robot

### Machine Learning Course Developer – Stackup/NUS

Jan-April 2017

Assisted in developing machine learning driven data science course

- Developed a facial recognition program using SVM
- Created a MEAN stack E-commerce website for use in case studies

## Projects

### Quiz it! - YHacks

Dec 2017

2<sup>nd</sup> place overall, winner of Google API prize and Best Education Hack

- Translated photos of text into fill-in-the-blank questions for Alexa skill
- Extracted important sentences and removed highest salience noun
- Dereferenced pronouns by assuming a Subject-Verb-Action structure

### Noter – Hack Harvard

Nov 2017

- Processed videos of lectures to convert into study-able notes
- Split up videos by using face detection to find pauses in writing
- Highlighted keywords using entity analysis of audio transcript

### Troll Index – EngHack

May 2017

Hack Harassment winner

- Built an internet troll identifier for reddit using Python's Natural Language Toolkit's sentiment analysis